Contributions to Entomology 75 (2) 2025, 371–379 | DOI 10.3897/contrib.entomol.75.e169240

CONTRIBUTIONS TO ENTOMOLOGY

SENCKENBERG

Research Article

Review of the Palaearctic species of *Diploplectron* W. Fox, 1893 (Hymenoptera, Astatidae)

Hans-Joachim Jacobs[1,2]

1 *An der Swinow 41, 17495 Züssow OT Ranzin, Germany*

2 *Senckenberg Deutsches Entomologisches Institut, Eberswalder Str. 90, 15374 Müncheberg, Germany*

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Corresponding author: Hans-Joachim Jacobs (jacobs.hym@gmx.de)

Academic editor: Stephan M. Blank | Received 19 August 2025 | Accepted 7 December 2025 | Published 19 December 2025

Abstract

The Palaearctic species of *Diploplectron* W. Fox, 1893 are reviewed and a key for species recognition is provided. *Diploplectron iranicum* **sp. nov.** from Iran and the hitherto unknown female of *Diploplectron pulawskii* Kazenas, 1975 are described. A distribution map of all Palaearctic species is given.

Zusammenfassung

Der Artikel beinhaltet eine Übersicht der paläarktischen Arten der Gattung *Diploplectron* W. Fox, 1893, Schlüssel zu ihrer Determination und eine Verbreitungskarte. *Diploplectron iranicum* **sp. nov.** aus dem Iran und das bisher unbekannte Weibchen von *Diploplectron pulawskii* Kazenas, 1975 werden beschrieben.

Key Words

Astatidae, Digger wasps, *Diploplectron*, key, new species, Palaearctic

Introduction

Diploplectron W. Fox, 1893 is a genus with 20 species worldwide: 13 from Nearctic, four from Palaearctic, two from Mexico and one from South Africa (Pulawski 2025). Members of this genus are poorly represented in entomological collections of the Old World. Parker (1972) revised *Diploplectron* of the New World. Here, the genus is more species-rich. Some species are more numerous, represented in entomological collections and occur in high abundance in mats of *Euphorbia* and Bermuda grass (Bohart and Menke 1976). Examination of the specimens stored in the Biodiversitätszentrum Linz (OLML) resulted in the discovery of *Diploplectron iranicum* sp. nov. from Iran and the hitherto unknown female of *Diploplectron pulawskii* Kazenas, 1975. Descriptions, keys to species and a distribution map of all Palaearctic species are provided.

Material and methods

The genus *Diploplectron* is treated in the sense of Bohart and Menke (1976). The following papers are used for the identification of the species: Pulawski (1958, 1964, 1965, 1978), Kazenas (1975, 1996, 2000) and Schmid-Egger (2014). The label data are cited "verbatim", without linguistic corrections and updating of historical place names. Specimens were examined using a Bresser stereomicroscope with maximal 80× magnification and a MK-S144T ring light. Photos were taken with an USB Microscope Camera MOC-510 and then processed with the stacking programme CombineZM. Final adjustment of images and montage of plates was carried out with the software Ulead PhotoImpact X3 of COREL. The distribution map was created with the free software SimpleMappr (Shorthouse 2010).

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Abbreviations

OLML Biodiversitätszentrum of the Oberösterreichische Landes-Kultur GmbH, Linz, Austria (former Oberösterreichisches Landesmuseum Linz, Austria).
CSE coll. Christian Schmid-Egger (Berlin, Germany).
SDEI Senckenberg Deutsches Entomologisches Institut (Müncheberg, Germany)
USNM United States National Museum (= National Museum of Natural History, Smithsonian Institution), Washington, USA.
ZIN Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

Diagnosis of *Diploplectron* W. Fox, 1893

The males differ from *Astata* Latreille, 1796 and *Dryudella* Spinola, 1843 by their dichoptic eyes (distance between the inner eye margins at the vertex wider than twice diameter of anterior ocellus). The females differ from *Astata* by the pygidial plate without stout lateral spines and from *Dryudella* by following characters: First recurrent vein receiving submarginal cell I (*D. asiaticum*, *D. palaearcticum*) or interstitial (*D. pulawskii*, *D. iranicum* sp. nov.); the latter are characterised by the combination of bidentate anterior margin of middle clypeal lobe (see Fig. 14), completely black metasoma, smooth and shiny mesoscutellum and mesopleuron as well as body length at most up to 6.5 mm. The females of *D. pulawskii* and *D. iranicum* sp. nov. are difficult to distinguish from some black females of *Dryudella*. Important characters are the distinctly protruding middle clypeal lobe with two apical teeth as well as polishing frons, mesoscutum and mesopleuron.

List of species

Diploplectron alexandri Kazenas, 1996

Diploplectron alexandri Kazenas, 1996: 936, ♂. Holotype ♂. Kazakhstan, 60–80 km northeast of Irghiz (ZIN). – Kazenas 2000: 179, ♂; key, description.

Material examined. Not examined.

Description (from Kazenas 1996, 2000).

Male. Body length 4–4.5 mm. Black. Antenna brown, partly yellowish-brown. Legs predominantly brown, femora reddish apically, tibiae reddish apically and basally, fore tibia with yellowish spot medially. Fore tarsus yellowish-brown, mid and hind tarsus brown. Middle clypeal lobe linguiform protruding, apically rounded (Fig. 9), slightly bent upwards, smooth and shiny; lateral lobes with transverse striae. Malar space twice as long as diameter of anterior ocellus. Frons with longitudinal furrow. Antennomeres II–III laterally with obliquely protruding setae. Mesoscutum, mesoscutellum and mesopleuron smooth and shiny; mesoscutum anteriorly with small punctures and setae, mesopleuron with scattered fine punctures and long setae. Propodeal dorsum finely micro-reticulated, posterior surface smooth and shiny. Wings hyaline, forewing veins brown, partly colourless. Subcosta and costa pale yellow before pterostigma, pterostigma pale brown with pale yellow margin. Marginal cell markedly short, anterior margin maximal about half as long as posterior height (Fig. 1).

Female. Unknown.

Distribution (Fig. 35). Kazakhstan (type locality).

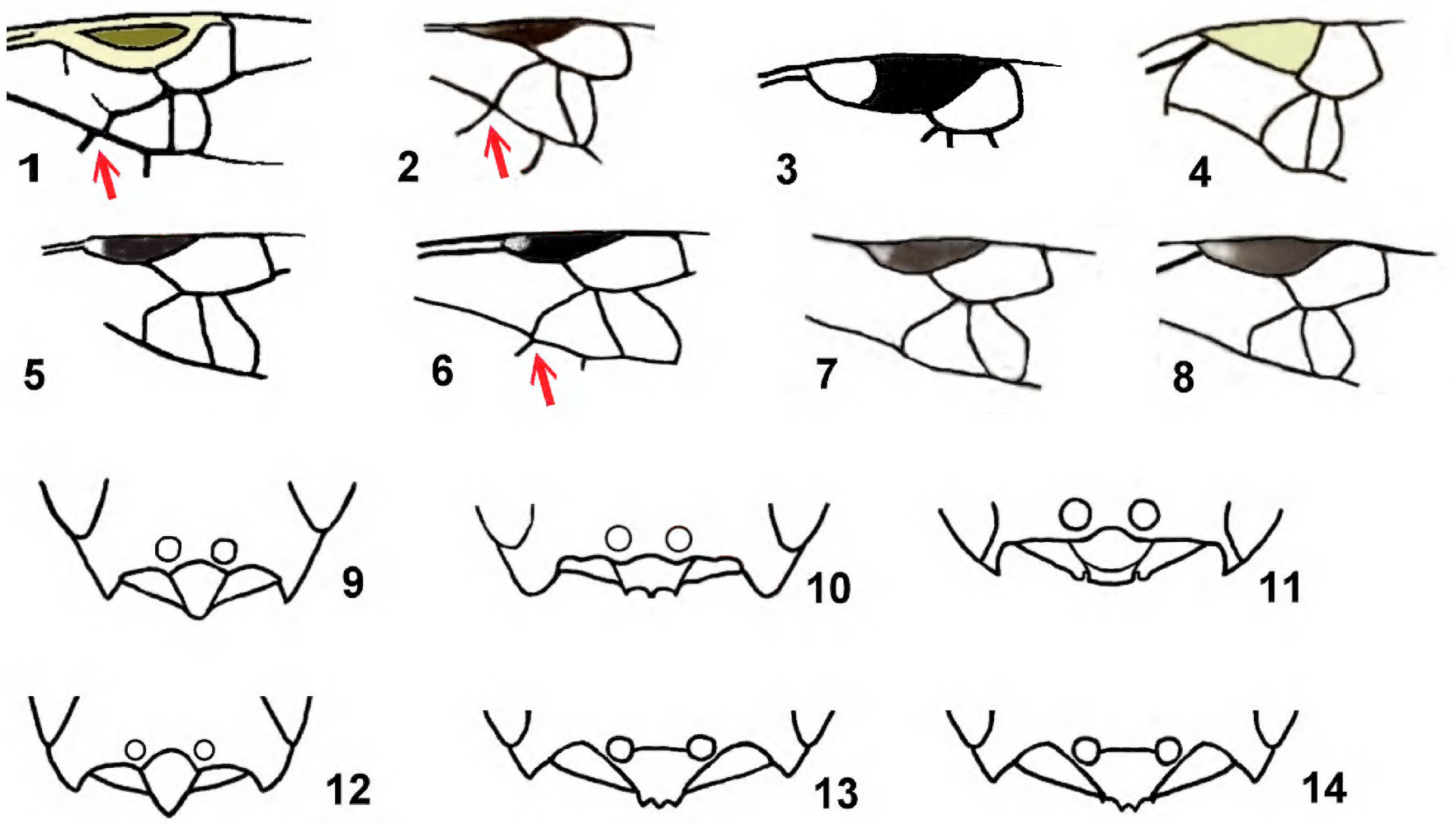
Diploplectron asiaticum Pulawski, 1965

Diploplectron asiaticum Pulawski, 1965: 221, ♂. Holotype ♂. Turkmenistan, Ashkhabad (ZIN). – Tsuneki 1971: 451, ♂; description. – Kazenas 1996: 938, description ♀. – Kazenas 2000: 179, 181, ♂, ♀; key, description.

Material examined. MONGOLIA. 1 ♂, Bayankhongor 130 km S, 1240 m, 45.03'N, 100.59'E, 06.07.2004, J. Halada (OLML).

Description. Male. Body length 4.0–5.0 mm, lateral view Fig. 15. Head and mesosoma black. Antenna reddish-brown, mandible reddish with brown tip. Antennomeres I–III with short white setae. Mandible basally with deep transverse sulcus, medially with tuft of pale setae. Malar space about 3× as long as diameter of anterior ocellus. Middle clypeal lobe medially with short triangular tooth in the middle and small lateral teeth, separating middle lobe from lateral lobes (Fig. 10). Clypeus indistinctly punctate, lateral lobes without distinct striae, finely punctate. Face finely punctate, with long white setae; frons, vertex and occiput smooth and shiny (Fig. 16). Head behind eyes well developed, about as long as eye length on vertex. Mesoscutum, mesoscutellum and mesopleuron smooth and shiny. Mesoscutum anteriorly and mesopleuron with scattered pale setae. Propodeal dorsum very finely micro-reticulated. Lateral surface of propodeum strongly coriaceous, declivity with strong punctures, both with long white setae. Metasoma dark brown to black, pygidium reddish. Tergum I and sterna with white setae. Femora dark brown with reddish apex and short white setae, longest ventral setae of hind femur distinctly shorter than half maximal femur diameter. Tibiae and tarsi reddish. Wings hyaline. Tegula brown; basal sclerites and base of forewing veins pale yellowish, other veins brown; pterostigma brown, basal quarter pale yellow. Anterior margin of marginal cell about 0.8× as long as apical height (Fig. 2).

Female (from Kazenas 1996, 2000). Body length 4 mm. Head and mesosoma black, pronotal lobe brown; metasoma black, proximal terga sometimes brownish, pygidium reddish. Femora dark brown to black with reddish apex, tibiae and tarsi reddish. Mandible



Figures 1–16. 1–8. Marginal cell. **1.** *D. alexandri* ♂ from Kazenas 1996; **2.** *D. asiaticum* ♂; **3.** *D. asiaticum* ♀ from Kazenas 1996; **4.** *D. palaearcticum* ♂; **5.** *D. iranicum* sp. nov. ♂ holotype; **6.** *D. iranicum* sp. nov. ♀ paratype; **7.** *D. pulawskii* ♂; **8.** *D. pulawskii* ♀. **9–14.** Clypeus: **9.** *D. alexandri* ♂ from Kazenas 1996; **10.** *D. asiaticum* ♂. from Pulawski 1965; **11.** *D. asiaticum* ♀ from Kazenas 1996; **12.**. *palaearcticum* ♂ from Pulawski 1958;**13.** *D. palaearcticum* ♀; **14.** *D. pulawskii* ♀; **15, 16.** *D. asiaticum*: **15.** ♂ lateral view; **16.** ♂ head frontal view.

reddish-yellow, tip dark brown. Antenna brown, apically reddish. Clypeus reddish-brown, middle clypeal lobe weakly convex, separated from lateral lobes by short teeth directed obliquely forward (Fig. 11). Malar space about as long as diameter of anterior ocellus. Frons strongly and evenly curved, smooth and shiny; nearly without punctures and microsculpture, medially with deep longitudinal furrow. Distance between antennal insertions about as wide as insertion diameter, about 2.5× as wide as distance between insertion and eye. Mesoscutum glabrous, smooth and shiny, with very scattered fine punctures. Mesoscutellum with deep longitudinal furrow. Mesopleuron smooth and shiny, with some pale setae. Propodeal dorsum finely reticulated, posterior surface smooth. Lateral propodeal surface smooth and shiny, with sparse white setation. Tegula reddish-brown, posteriorly hyaline. Wing veins brown or reddish-brown, basally whitish-yellow. Pterostigma brown with whitish-yellow base as well as adjacent part of costa. Marginal cell very short, apically rounded, anterior margin less than half as long as posterior height (Fig. 3). First recurrent vein leads to submarginal cell I.

Distribution (Fig. 35). Turkmenistan (holotype), Kazakhstan (paratypes, Kazenas 1972, 1996, 2002), Mongolia (Tsuneki 1971), Russia: Astrakhan prov. (Mokrousov et al. 2016) (Fig. 35). The isolated record (a single male) from Israel (Mokrousov et al. 2016) requires confirmation and is not included in the distribution map.

Diploplectron iranicum Jacobs, sp. nov.

https://zoobank.org/5C8C8AC7-2FBA-4A32-9DAE-BD0FEA9FF31E

Holotype. ♂, Iran, Kerman prov., Ghobira 20 km E, 1780 m, 30.10'N, 56.59'E, 05.06.2010, Mi. Halada (OLML). **Paratypes**. 1 ♂, 1 ♀ with same data as holotype (OLML).

Diagnosis. Male. The male of *D. iranicum* sp. nov. is distinguished from the other Palaearctic species of *Diploplectron* by the extensive yellow colouration on terga I–II. It differs from *D. alexandri*, *D. asiaticum* and *D. palaearcticum* by the ventrally yellow apical antennomeres, the yellow frontal spot and the shorter malar space. It differs from *D. asiaticum* by the roundly protruding and upwards bent middle clypeal lobe and due to the absence of a transverse sulcus at the mandible base; from *D. palaearcticum* and *D. alexandri* by the brown pterostigma and from *D. palaearcticum* additionally by the mostly brown forewing veins. It is additionally distinguished from *D. pulawskii* by pale setae of the antennomeres I–III.

Female. The female of *D. iranicum* sp. nov. is distinguished from *D. palaearcticum* and *D. asiaticum* by a longer marginal cell of the forewing and by a shorter malar space, from *D. palaearcticum* additionally by mostly brown forewing veins. It differs from *D. pulawskii* by white setae of antennomeres I–II and by white bristles on mid and hind coxa.

Description. Male. Body length 5.0–5.5 mm, dorsal view Figs 17, 19, lateral view Figs 18, 20 (holotype, paratype). Head and mesosoma black, frons with small yellow spot below anterior ocellus (Fig. 33). Metasoma dark brown, tergum I with pale yellow band or nearly confluent spots, II with small pale yellow spots variable in size, small at holotype, large and nearly confluent at paratype. Pygidium reddish. Mandible black, apex reddish, with tuft of pale setae medially, simple. Malar space about 1.1–1.5× as long as diameter of anterior ocellus. Antenna black, antennomeres (VIII)IX–XII(XIII) ventrally yellow or pale brown, I–III with pale setae. Clypeus smooth and shiny; middle clypeal lobe linguiform protruding, anterior margin rounded and bent upwards; separated from lateral lobes by deep sulcus. Lateral clypeal lobes finely transverse striated. Face finely micro-sculptured, glabrous. Frons and vertex smooth and shiny, frons distinctly convex (Fig. 33). Gena smooth and shiny, occiput with long white setae. Mesoscutum, mesoscutellum, mesopleuron and metapleuron smooth and shiny; anterior surface of mesoscutum and mesopleuron with white setae, those on mesopleuron longer than diameter of anterior ocellus. Propodeal dorsum micro-reticulated, lateral and posterior area smooth and shiny. Lateral surface of propodeum coriaceous; declivity with deep triangular basal impression, smooth and shiny; both with long white setae. Tergum I and sterna with short white setae. Coxae and trochanters black, femora black with reddish apex; tibiae brown with yellowish basal spot, fore tibia with reddish-yellow inner surface; tarsi reddish-brown, hind tarsus darker. Mid and hind coxa with pale bristles. Fore and hind femur ventrally with white setae, shorter than maximal femur diameter. Forewing hyaline, with light brownish tinge. Tegula, basal sclerites, base of forewing veins and subcosta before the pterostigma pale yellow, other veins and pterostigma brown. Anterior margin of marginal cell about 1.3–1.5× as long as posterior height (Fig. 5).

Female. Body length 5.5 mm, paratype dorsal view Fig. 21, lateral view Fig. 22. Head and mesosoma black, pygidial plate reddish. Mandible reddish with dark brown tip. Clypeus smooth and shiny, anterior margin of middle clypeal lobe with two small teeth. Malar space very short, about 0.5× as long as diameter of anterior ocellus. Face finely micro-sculptured, glabrous. Frons and vertex smooth and shiny, frons distinctly convex. Antenna black, antennomeres I–II with pale bristles, III with very short pale setae. Frons, vertex and occiput smooth and shiny, frons with indistinct and very scattered punctures (Fig. 34). Mesoscutum, mesoscutellum and mesopleuron smooth and shiny, mesoscutum anteriorly with scattered punctures. Propodeal dorsum micro-reticulated. Lateral surface of propodeum micropunctate, posteriorly with some longitudinal carinae. Declivity smooth and shiny, with triangular basal impression. Propodeum, except dorsal surface, with white setae. Pygidial plate with nearly straight lateral margins, surface coriaceous. Terga shiny, with transverse micro-striae. Sterna with short white setae. Coxae and trochanters black, femora black with reddish apex; tibiae brown with reddish base, fore tibia with reddish-yellow inner surface; tarsi reddish-brown, hind tarsus darker. Mid and hind coxa with pale bristles. Fore and hind femur ventrally with brownish setae, longest ventral setae of hind femur about as long as maximal femur diameter. Fore basitarsus with four short rake spines, apical spine about two thirds as long as tarsomere II. Forewing hyaline, with light brownish tinge. Tegula brown with yellow posterior margin; basal sclerites, base of forewing veins and subcosta before the pterostigma pale yellow, other veins and pterostigma brown. Anterior margin of marginal cell about 1.3× as long as posterior height (Fig. 6).

Distribution (Fig. 35). Iran (type locality).

Diploplectron palaearcticum Pulawski, 1958

Diploplectron palaearcticum Pulawski, 1958: 473, ♂, ♀. Holotype ♀. Egypt, Sinai, Wadi Mitla (USNM). – Pulawski, 1964: 81, ♀, ♂; additional description.

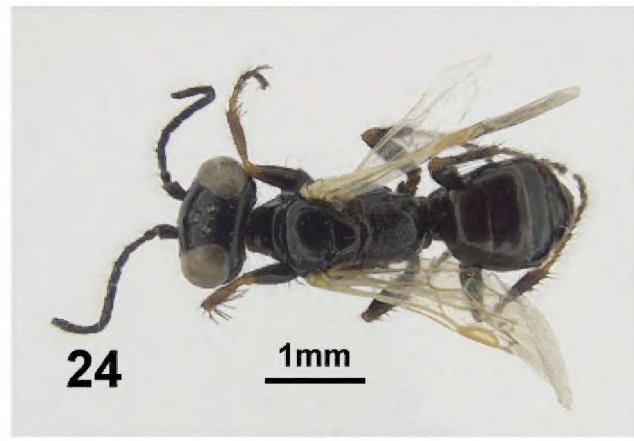
Diploplectron palearcticum (misspelling or unjustified emendation): Roche 2007: 53; holotype ♀ in Al Azhar University Cairo, ♀ redescription. – Schmid-Egger 2014: 547–549; photo, in key of Arabian *Dryudella*. – Pulawski 1925: 4; catalogue.

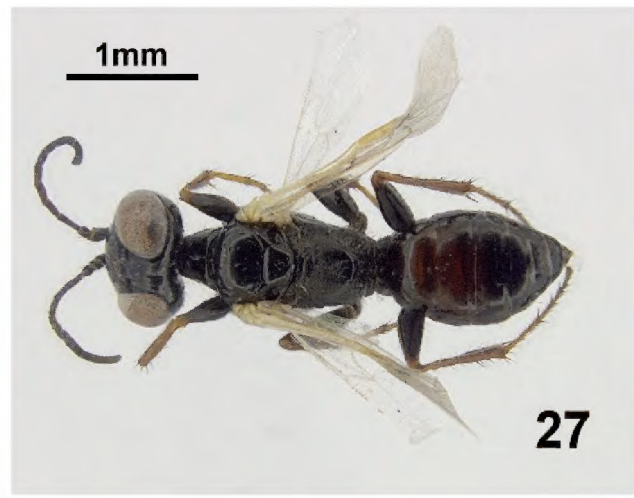
Material examined. Egypt. Fayed, 04.1943, Priesner, 1 ♀ (OLML). Israel. Arava valley, Hyw 90 at km 149, -60 m, 30.42.90'N, 35.11.15'E, 04.05.1995 O.&M.Niehius, 1 ♀ (CSE). — Morocco. Rachidia 80 km S, Rissani 20 km W, 04.04.1996, O.&M. Niehuis, det. Pulawski, 1 ♀ (CSE). — Saudi Arabia. Riyad r., S of Riyadh, 24.425'N, 46.653'E, 06.03.2024, M. Halada, 1 ♂, 1 ♀ (CSE). – Riyad r., Ulya 100 km NW Riyadh, 25.281'N 46.021'E, 09.03.2024, M. Halada, 1 ♂, 2 ♀♀ (CSE). — Tunisia.

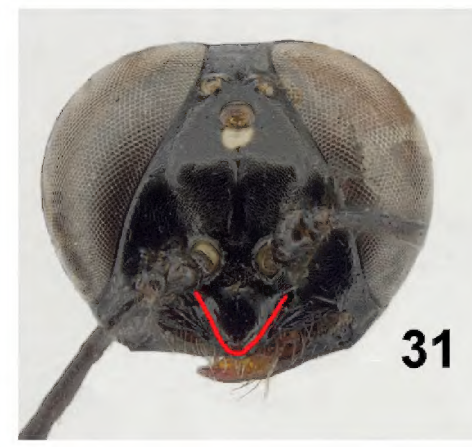
Figures 17–22. *D. iranicum* sp. nov.: **17.** ♂ holotype dorsal view; **18.** ♂ holotype lateral view; **19.** ♂ paratype dorsal view; **20.** ♂ paratype lateral view; **21.** ♀ paratype dorsal view; **22.** ♀ paratype lateral view.

Tataouine, 11.04.2001, M. Halada, 1 ♀ (OLML). — United Arab Emirates. Jebel Hafit, 24.07'N, 55.75'E, 03.03.2011, van Harten, det. Schmid-Egger, 1 ♀ (CSE). – Liwa Oasis 5 km E Mezairaa, 23.12'N, 53.84'E, 09.01.2011, leg. et det. Schmid-Egger, 1 ♂ (CSE). – Sarhaj Desert Park, 25.17'N, 55.42'E, 22.11.2004, van Harten, det. Schmid-Egger, 1 ♀ (CSE). Wadi Maidaq, 25.18'N, 56.07'E, 29.04.2009, van Harten, 1 ♀ (CSE).

Description. Male. Body length 4.0–4.5 mm, lateral view Fig. 23, dorsal view Fig. 24. Black, pygidium sometimes brownish. Antenna dark brown, antennomeres I–III inner side with long black setae, IV–XI with narrow brownish tyloids. Coxae and trochanters black, femora black with reddish apex; fore tibia and tarsus reddish-brown, tibia and tarsus of mid and hind legs mostly darker brown. Mandible black, reddish mesally, simple. Malar space about three times as long as diameter of anterior ocellus. Middle clypeal lobe smooth and shiny; anterior margin linguiform prolonged, apex slightly bent upwards (Fig. 12). Lateral clypeal lobes with oblique striae, separated from middle lobe by deep sulcus. Face finely micro-striated; frons smooth and shiny, with very scattered punctures (Fig. 25). Vertex and occiput smooth and shiny, the latter with very scattered punctures and pale setae. Mesoscutum shiny, anterior surface finely coriaceous, with short pale setae, posterior surface smooth with very scattered punctures. Mesoscutellum variable; smooth and shiny or more or less finely reticulated. Mesopleuron smooth and shiny, posteriorly with scattered punctures, ventrally with







Figures 23–34. 23–28. *D. palaearcticum*: **23.** ♂ lateral view; **24.** ♂ dorsal view; **25.** ♂ head frontal view; **26.** ♀ lateral view; **27.** ♀ dorsal view; **28.** ♀ head frontal view. **29–32.** *D. pulawskii*: **29.** ♂ lateral view; **30.** ♀ lateral view; **31.** ♂ head frontal view; **32.** ♀ head frontal view. **33, 34.** *D. iranicum* sp. nov. head frontal view: **33.** ♂; **34.** ♀.

brownish setae. Propodeal dorsum micro-reticulated, posterior margin smooth and shiny. Lateral surface of propodeum with strong punctures, interspaces distinctly micro-punctate. Declivity smooth and shiny, with scattered punctures. Propodeum, except propodeal dorsum, with pale setae. Metasomal terga with transverse micro-striation; sternum II with some erect pale setae. Ventral setae of fore and hind femur about half as long as maximal femur diameter. Forewing hyaline; tegula, basal sclerites and wing veins pale yellow; pterostigma pale yellow or pale brown with yellow border. Anterior margin of marginal cell about 0.7× as posterior height (Fig. 4).

Female. Body length 4.0–4.5 mm, lateral view Fig. 26, dorsal view Fig. 27. Head, mesosoma and metasoma black. Antenna dark brown to black, antennomeres I–III with black bristles. Coxae and trochanters black, femora black with reddish apex, fore tibia and tarsus reddish-brown, tibia and tarsus of mid and hind legs darker brown with reddish base. Mandible reddish with dark brown tip. Malar space about two times as long as diameter of anterior ocellus. Middle clypeal lobe smooth and shiny, anterior margin with three short teeth (often difficult visible), separated from lateral lobes by deep sulcus, without tooth between middle and lateral lobes (Fig. 13). Lateral clypeal lobes with oblique striae. Face very finely micro-sculptured, frons smooth and

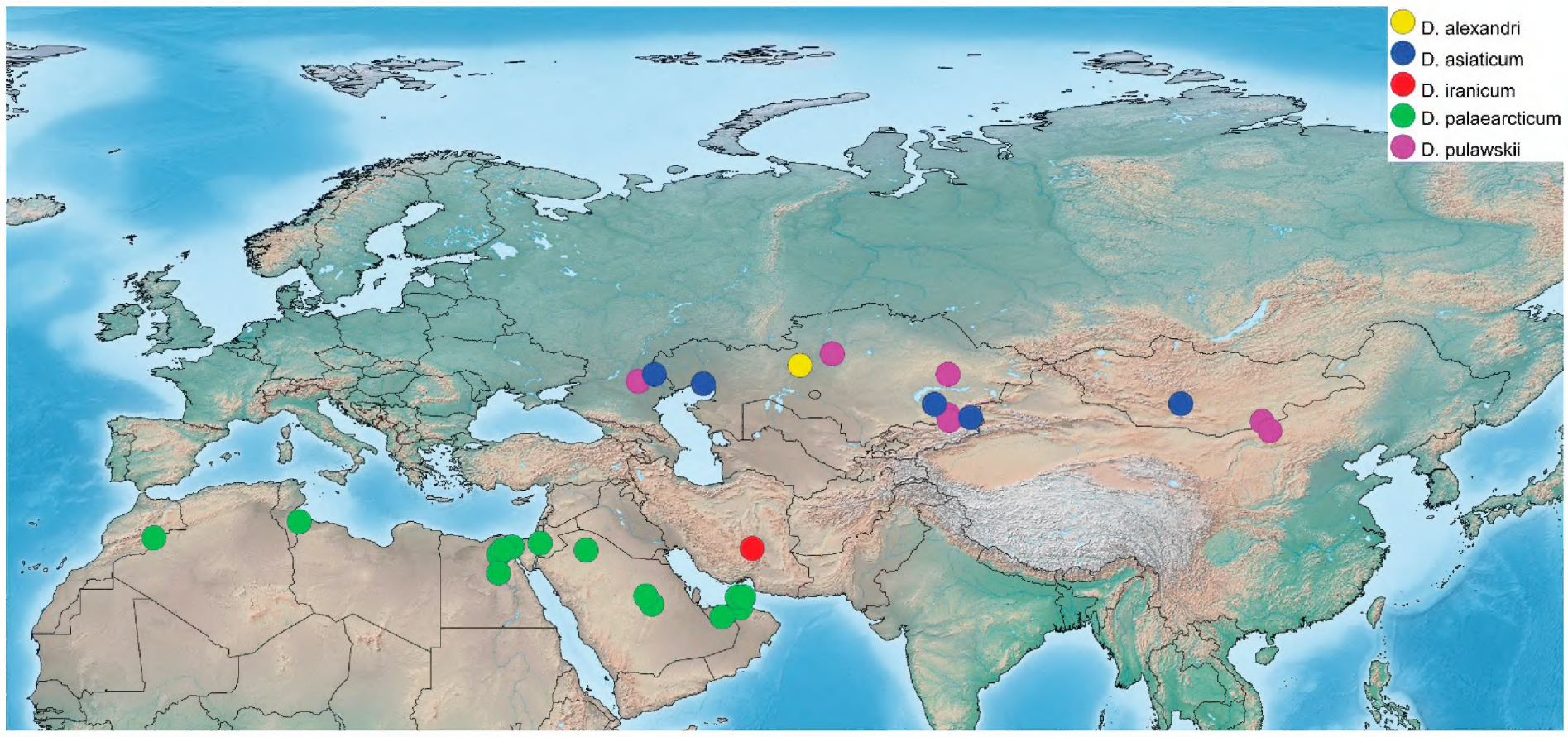


Figure 35. Distribution map of Palaearctic *Diploplectron* species: yellow *D. alexandri*, blue *D. asiaticum*, red *D. iranicum*, green *D. palaearcticum*, pink *D. pulawskii*.

shiny with very scattered punctures (Fig. 28). Vertex smooth and shiny, beside posterior ocelli with dull impression about twice as long as diameter of anterior ocellus. Occiput smooth and shiny, with white setae. Mesoscutum, mesoscutellum and mesopleuron smooth and shiny; ventral surface of mesopleuron with greyish setae. Propodeal dorsum finely granulate. Lateral surface of propodeum and declivity coriaceous, with distinct longitudinal carinae. Propodeum, except dorsum, with sparse whitish setation. Metasomal terga shiny. Sternum II and posterior margins of terminal sterna with dark setae. Fore basitarsus with four long rake spines, apical spine about twice as long as tarsomere II. Mid and hind coxa with black bristles. Ventral setae of fore and hind femur at least about as long as maximal femur diameter. Forewing hyaline; tegula, basal sclerites and at least costa and subcosta yellow, remaining forewing veins yellowish or pale brown. Pterostigma yellow or pale brown with yellow border. Marginal cell very short, anterior margin about 0.3–0.5× as long as posterior height.

Distribution (Fig. 35). Egypt (type locality) (Pulawski 1964, Roche 2007), Israel (Beaumont et al. 1973), Morocco, Saudi Arabia, Tunisia, United Arab Emirates (Schmid-Egger 2014).

Diploplectron pulawskii Kazenas, 1975

Diploplectron pulawskii Kazenas, 1975: 129, ♂. Holotype ♂. Kazakhstan, Kapchagay (storage of type not indicated in the original description; ZIN after Mokrousov et al. 2016).

Material examined. KAZAKHSTAN. Charyn Valley W Chundza, 650 m, 43.37'N, 79.21'E, 31.05.2001, M. Hauser, 1 ♀ (CSE). — MONGOLIA. Bayankhongor 130 km S, 1240 m, 45.03'N, 100.59'E, 06.07.2004, J. Halada, 1 ♀ (OLML). – Choibalsan 100 km W, 820 m, 23.07.2007, M. Kadlecova, 1 ♂ (OLML); J. Halada, 1 ♂ (CSE). – Domogoy reg. stepp, Chatan Bulag 28 km SE, 03.08.2007, M. Halada, 1 ♂, 3 ♀♀ (OLML). – Saynshand 70 km S, 1100 m, 06.08.2007, M. Halada, 4 ♂♂, 1 ♀ (OLML).

Description. Male. Body length 5.0–5.5 mm, lateral view Fig. 29. Head black, frons with small yellow spot below anterior ocellus. Mesosoma and metasoma black, pygidium sometimes brownish. Legs black, fore femur with red apex, fore tibia inner side and basally reddish-yellow, fore tarsus reddish-brown. Antenna black, antennomeres IX–XII ventrally pale yellow or pale brownish. Mandible black, reddish mesally. Malar space about 1.2–1.5× as long as diameter of anterior ocellus. Middle clypeal lobe smooth and shiny, anterior margin roundly protruding, apex bent upwards from lateral lobes separated by deep sulcus. Lateral clypeal lobes with fine transverse striae. Face, frons, vertex and occiput shiny, finely micro-punctate; occiput with white setae (Fig. 31). Antennomeres I–III with dark bristles. Mesoscutum, mesoscutellum and mesopleuron smooth and shiny; anterior surface of mesoscutum coriaceous with short white setae. Mesopleuron ventrally with white setae. Propodeal dorsum finely granulate, lateral surface of propodeum coriaceous, declivity smooth and shiny with strong punctures. Propodeum, except dorsum, with white setae. Metasoma shiny, tergum I and sterna with white setae. Mid- and hind coxa with pale setae. Longest ventral setae of fore- and hind femur no longer than half maximal femur diameter. Tegula dark brown. Forewing hyaline, basal sclerites brown and pale yellow, base of veins and subcosta before the pterostigma pale yellow, other veins and pterostigma dark brown. Anterior margin of marginal cell about 1.2–1.8× as long as apical height (Fig. 7).

Female. Body length (4.5)5.5–6.5 mm, lateral view Fig. 30). Head, antenna and mesosoma black. Mandible reddish-brown with black tip. Metasoma black, terga I–II sometimes dark brownish, pygidial plate reddish. Coxae, trochanters and femora black; fore tibia reddish-brown; mid and hind tibia dark brown; fore- and

mid-tarsus reddish, hind tarsus dark brown. Malar space about 0.3–0.5× as long as diameter of anterior ocellus. Middle clypeal lobe shiny with some punctures, anterior margin with two very small teeth (Fig. 14). Face and frons very finely micro-reticulated, with very scattered distinct punctures (Fig. 32). Vertex and occiput smooth and shiny, the latter with short white setae. Antennomeres I–III with black bristles. Pronotal collar micro-reticulated, with short white setae. Mesoscutum smooth and shiny, anterior margin coriaceous, with short white setae. Mesoscutellum smooth and shiny, finely micro-striated posteriorly. Mesopleuron micro-reticulated, moderately shiny, ventrally with brownish setae. Epimeron smooth and shiny, distinctly different from remaining parts of mesopleuron. Propodeal dorsum densely granulated, dull. Lateral surface of propodeum coriaceous, dull, with longitudinal striae posteriorly. Declivity coriaceous with some stronger punctures. Propodeum, except dorsum, with white setae. Metasomal terga finely micro-striated. Sternum II and posterior margins of following sterna with black setae. Fore basitarsus with four black rake spines, apical spine about as long as fore tarsomere II. Fore- and hind femur with black setae ventrally; the longest ones of fore femur about half as long, those of hind femur about two thirds as long as maximal femur diameter. Coxa and trochanter of mid- and hind legs with black bristles. Tegula brown, posterior margin transparent. Forewing hyaline, basal sclerites, base of costa and subcosta pale yellow, subcosta before pterostigma pale brown; other veins dark brown, pterostigma brown. Anterior margin of marginal cell about 0.9–1.2× as long as apical height (Fig. 8).

Distribution (Fig. 35). Kazakhstan (type locality, Kazenas 2002), Russia: Kalmykia (Mokrousov et al. 2016), Mongolia.

Key to males

1 Antenna black, antennomeres IX–XII pale yellow or pale brown ventrally. Frons with yellow spot below anterior ocellus (Figs 31, 33). Marginal cell long, anterior margin about 1.2–1.8× as long as apical height (Figs 5, 7). Malar space short, at most about 1.5× as long as diameter of anterior ocellus **2**

– Antenna black, brown or reddish-brown, terminal antennomeres always without pale spots, at most middle antennomeres with narrow brownish tyloids. Frons black, without yellow spot (Figs 16, 25). Marginal cell short, anterior margin maximal 0.8× as long as apical height (Figs 2, 4). Malar space long, at least about 2× as long as diameter of anterior ocellus **3**

2(1) Metasoma black, without yellow spots on terga I–II. 5.0–5.5 mm. South-eastern part of European Russia, Central Asia ***D. pulawskii* Kazenas, 1975**

– Metasomal tergum I with pale yellow band; II with pale yellow lateral spots, sometimes confluent (Figs 17, 19). 5.0–5.5 mm. Iran ***D. iranicum* sp. nov.**

3(1) Anterior clypeal margin with short triangular tooth medially and small teeth between middle and lateral clypeal lobes (Fig. 10). Lateral clypeal lobes smooth and shiny, with some fine punctures. Mandible basally with deep transverse sulcus. Antenna reddish-brown. Forewing veins brown; pterostigma brown, basal quarter pale yellow (Fig. 2). 4.0–5.0 mm. South-eastern part of European Russia, Central Asia ***D. asiaticum* Pulawski, 1965**

– Anterior clypeal margin linguiform protruding, anteriorly rounded and bent upwards, without teeth between middle and lateral lobes (Figs 10, 12). Lateral clypeal lobes more or less transversely striated. Mandible basally simple, without transverse furrow. Forewing veins pale yellow to pale brown, partly colourless; pterostigma pale yellow (Fig. 4) or pale brown with yellow border (Fig. 1) **4**

4(3) Malar space about three times as long as diameter of anterior ocellus. Antenna dark brown to black. Femora predominantly black. Fore tibia uniformly reddish or brownish, without yellow spot medially. 4.0–4.5 mm. Northern Africa, Arabian Peninsula, Israel ***D. palaearcticum* Pulawski, 1958**

– Malar space about two times as long as diameter of anerior ocellus. Antenna brown, partly yellowish-brown. Femora predominantly brown. Fore tibia reddish, medially with yellow spot. 4.0–4.5 mm. Kazakhstan ***D. alexandri* Kazenas, 1996**

Key to females

Unknown. *D. alexandri* Kazenas, 1996

1 Marginal cell short; anterior margin at most about 0.5× as long as posterior height, apically more or less rounded (Fig. 3) **2**

– Marginal cell longer; anterior margin at least about 0.8× as long as posterior height, apically straight (Figs 6, 8) **3**

2(1) Anterior margin of middle clypeal lobe with three small teeth (Fig. 13). Between middle clypeal lobe and lateral lobes without teeth. Forewing veins nearly completely yellow or pale brown. Pterostigma pale yellow or pale brown with yellow border. Antenna dark brown to black, clypeus black. 4.0–4.5 mm. Northern Africa, Arabian Peninsula, Israel ***D. palaearcticum* Pulawski, 1958**

– Anterior margin of middle clypeal lobe weakly convex; middle clypeal lobe and lateral lobes separated by blunt teeth (Fig. 11). Forewing veins at least partly brown; costa and subcosta brown, only basally and before the pterostigma pale yellow. Pterostigma bicoloured, anteriorly pale yellow, posteriorly brown. Antenna and clypeus at least partly reddish-brown. 4 mm. South-eastern part of European Russia, Central Asia ***D. asiaticum* Pulawski, 1965**

3(1) Antennomeres I–II with black bristles, III with short black setae. Mid and hind coxa with black bristles. Longest ventral setae of hind femur about two thirds as long as maximal femur diameter. Anterior margin of marginal cell about 0.9–1.2× as long as apical height (Fig. 8). 4.5–6.5 mm. South-eastern part of European Russia, Central Asia ***D. pulawskii* Kazenas, 1975**

– Antennomeres I–II with pale bristles, III with very short white setae. Mid and hind coxa with pale bristles. Longest ventral setae of hind femur about as long as maximal femur diameter. Anterior margin of marginal cell about 1.3× as long as apical height (Fig. 6). 5.5 mm. Iran ***D. iranicum* sp. nov.**

Acknowledgements

My sincere thanks goes to Esther Ockermüller (Linz, Austria) and Christian Schmid-Egger (Berlin, Germany) for loan of material as well as Stephan M. Blank (Müncheberg, Germany) for the use of the SDEI photo lab. Furthermore, I thank Michael Ohl (Berlin, Germany) and Christian Schmid-Egger for critical reading the manuscript and valuable comments.

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